

Bay Area Air Quality Management District

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**Permit Evaluation
and
Statement of Basis
for
MAJOR FACILITY REVIEW PERMIT**

**for
Napa-Vallejo Waste Management Authority
Facility #A9183**

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Title V Statement of Basis

A. Background

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a designated facility as defined by BAAQMD Regulation 2-6-204. The Emission Guidelines for Municipal Solid Waste Landfills (40 CFR Part 60, Subpart Cc) require the owner or operator of a landfill that is subject to this part and that has a design capacity of greater than or equal to 2.5 million mega grams and 2.5 million cubic meters to obtain an operating permit pursuant to Part 70. As discussed in more detail below in Section C.IV of this report, this facility is subject to these emission guidelines and meets the designated facility criteria listed in 40 CFR § 60.32c(c).

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70. The permits must contain all applicable requirements (as defined in 40 CFR § 70.2), monitoring requirements, record keeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

Each facility in the Bay Area is assigned a facility number that consists of a letter and a 4-digit number. This facility number is also considered to be the identifier for the permit.

B. Facility Description

The Napa-Vallejo Waste Management Authority (NVWMA) owns and operates the American Canyon Sanitary Landfill. The site is located north of the City of Vallejo in southern Napa County. The site includes the American Canyon Sanitary Landfill (S-1), which is equipped with an active landfill gas collection system, and a Landfill Gas Flare (A-2).

The S-1 American Canyon Sanitary Landfill is an inactive Class III Solid Waste Disposal Site. The site began accepting waste from open burning operations in 1942. From 1971 through 1995, the site accepted municipal solid waste. Since 1995, the site has accepted only small amounts of green waste and yard debris and has accepted no waste since December 31, 2000. Closure operations are underway. Final closure is expected within a few years. The refuse footprint occupies about 98 acres of the 122-acre site. The refuse depth varies down to about 60 feet maximum. The maximum design capacity of the site is about 7,000,000 yd³ (total of all materials in the landfill). The site contains 4,693,000 yd³ (4,230,000 tons) of refuse.

At the landfill, the waste decomposition process generates landfill gas, which contains mainly methane, carbon dioxide, and small amounts of non-methane organic compounds (<1%) and sulfur compounds (<200 ppmv). Many of the non-methane organic compounds (NMOCs) found in landfill gas are precursor organic compounds (POC), and some NMOCs are hazardous air pollutants (HAP). Various local, state, and federal regulations require that landfill gas be collected and controlled to reduce POC and HAP emissions to the atmosphere. In order to meet these requirements, the landfill at this site is equipped with an active landfill gas collection system and a landfill gas control system.

Active landfill gas collection systems consist of perforated pipes that are buried in the refuse at numerous locations, solid pipes referred to as laterals and headers, and blowers. The perforated pipes are called horizontal collectors or vertical wells, depending on the orientation of the pipes within the refuse. The gas collection system at this site includes 92 vertical extraction wells and 35 additional wells that are used to collect both landfill gas and leachate (liquid runoff from the landfill). The solid pipes connect these wells to the blowers. The blowers collect landfill gas by creating a vacuum in the buried refuse that draws landfill gas into the pipes. The blowers vent this collected landfill gas to the landfill gas control system.

The landfill gas control system at this site includes an on-site Landfill Gas Flare (A-2) and two off-site Internal Combustion (IC) Engines (S-2 and S-3) that are located at Site # B1671. These combustion devices destroy most of the methane, organic compounds, sulfur compounds, and HAPs in the landfill gas, but also produce secondary combustion pollutants including: nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter (PM₁₀), formaldehyde, and hydrogen chloride.

The IC Engines at Site # B1671 are owned and operated by a separate company, Gas Recovery Systems, Inc. Site # B1671 is not a designated facility and the potential to emit from the equipment at Site # B1671 does not exceed any of the Major Facility Review thresholds. Therefore, Site # B1671 is not subject to Major Facility Review and a Title V operating permit is not required.

C. Permit Content

The legal and factual basis for the permit follows. The permit sections are described in the order that they are presented in the permit.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for certain fossil fuel fired electrical generating facilities or the accidental release (40 CFR § 68) programs apply, the section will contain a standard condition pertaining to these programs. Many of these conditions derive from 40 CFR § 70.6, Permit Content, which dictates certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted

into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

The standard conditions also contain references to BAAQMD Regulation 1 and Regulation 2. These are the District's General Provisions and Permitting rules.

Condition I.J has been added to clarify that the capacity limits shown in Table II-A are enforceable limits.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S-24).

Permitted sources are those sources that require a BAAQMD operating permit pursuant to BAAQMD Rule 2-1-302.

Significant sources are those sources that have a potential to emit of more than 2 tons of a "regulated air pollutant," as defined in BAAQMD Rule 2-6-222, per year or 400 pounds of a "hazardous air pollutant," as defined in BAAQMD Rule 2-6-210, per year. There are no significant unpermitted sources at this facility.

All abatement (control) devices that control permitted or significant sources are listed. Each abatement device is identified by an A and a number (e.g., A-24).

The equipment section is considered to be part of the facility description. It contains information that is necessary for applicability determinations, such as fuel types, contents or sizes of tanks, etc. This information is part of the factual basis of the permit.

Each of the permitted sources has previously been issued an authority to construct or permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. These permits are issued in accordance with state law and the District's regulations. The capacities in this table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-403.

Following are explanations of the differences in the equipment list between the time that the facility originally applied for a Title V permit and the permit proposal date. NVWMA discussed the proposed collection system expansion and proposed landfill gas flare in documents accompanying their MFR permit application. However, this equipment was not included on any of their MFR application forms. Now that the District has issued an Authority to Construct for the expanded collection system and the A-2 Landfill Gas Flare, the District has proposed to include all new equipment in the draft MFR Permit, along with all permit condition changes approved pursuant to Applications # 3286 and #6740.

III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources and portable equipment that may not require a District permit. If a generally applicable requirement applies specifically to a source that is permitted or significant, the standard will also appear in Section IV and the monitoring for that requirement will appear in Sections IV and VII of the permit. Parts of this section apply to all facilities (e.g., particulate, architectural coating, odorous substance, and sandblasting standards). In addition, standards that apply to insignificant or unpermitted sources at a facility (e.g., refrigeration units that use more than 50 pounds of an ozone-depleting compound), are placed in this section.

Unpermitted sources are exempt from normal District permits pursuant to an exemption in BAAQMD Regulation 2, Rule 1. They may, however, be specifically described in a Title V permit if they are considered a significant source pursuant to the definition in BAAQMD Regulation 2-6-239. This facility does not have any significant sources that do not have District permits.

IV. Source-Specific Applicable Requirements

This section of the permit lists the applicable requirements that apply to permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The order of the requirements is:

- District Rules and Regulations
- SIP Rules (if any) are listed following the corresponding District regulations. SIP rules are District regulations that have been approved by EPA for inclusion in the California State Implementation Plan. SIP rules are federally enforceable and a “Y” (yes) indication will appear in the “Federally Enforceable” column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the “Federally Enforceable” column will have a “Y” for “yes”. If the SIP rule is not the current District rule, the SIP rule or the necessary portions of the SIP rule are cited separately after the District rule. The SIP portion will be federally enforceable; the non-SIP version will not be federally enforceable, unless EPA has approved it through another program.
- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.
- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

Section IV of the permit contains citations to all of the applicable requirements. The text of the requirements is found in the regulations, which are readily available on the District’s or EPA’s websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.

Complex Applicability Determinations

Landfills and landfill gas combustion equipment are subject to BAAQMD Regulation 8, Rule 34. This regulation requires landfills that have more than 1 million tons of refuse in place to collect and control the landfill gas that is generated by waste decomposition and specifies numerous operating, monitoring, and reporting requirements for subject operations. Regulation 8, Rule 34 has required that the American Canyon Sanitary Landfill be controlled by an active landfill gas collection system and a landfill gas control system since 1987.

Landfills and landfill gas combustion equipment may also be subject to either the federal New Source Performance Standards (NSPS) for Municipal Solid Waste (MSW) Landfills or the Emission Guidelines (EG) for MSW Landfills. The federal NSPS for MSW Landfills (40 CFR Part 60, Subpart WWW) applies to landfills that have had a design capacity modification after May 30, 1991. The EG for MSW Landfills (40 CFR Part 60, Subpart Cc) applies to landfills that have had no design capacity modification since May 30, 1991 but that have accepted waste since November 8, 1987. The American Canyon Sanitary Landfill has had no design capacity modifications since May 30, 1991, but waste was accepted after November 8, 1987. Therefore the EG is applicable to this landfill facility.

The BAAQMD implemented the EG by amending Regulation 8, Rule 34 on October 6, 1999. Initially, Bay Area landfills were subject to the Federal Plan for MSW Landfills (40 CFR Part 62, Subpart GGG) until EPA incorporated the October 1999 amendments to Regulation 8, Rule 34 into the California State Plan for MSW Landfills (40 CFR § 62.1115). On September 20, 2001, EPA amended the California State Plan to include the BAAQMD's October 1999 amendments and amended the Federal Plan to remove Bay Area landfills from the Federal Plan, effective November 19, 2001. Therefore, BAAQMD Regulation 8, Rule 34, as amended on October 1999, is federally enforceable. In addition, the October 1999 amendments were adopted into the SIP, effective August 30, 2002.

In accordance with the EG, BAAQMD Regulation 8, Rule 34 requires large landfills (with a design capacity greater than or equal to 2.5 million Mg and greater than or equal to 2.5 million m³) to be equipped with landfill gas collection and control systems. The EG (40 CFR § 60.32c(c)) requires the owner or operator of a landfill meeting these design capacity criteria to obtain a Title V operating permit pursuant to 40 CFR, Part 70. The design capacity of the American Canyon Sanitary Landfill exceeds these design capacity applicability criteria. Accordingly, Napa-Vallejo Waste Management Authority was required to submit an application for a Title V permit (for all equipment owned and operated by NVWMA) by April 6, 2001.

Subject landfills and the associated collection and control systems were required to meet numerous operating, monitoring, and reporting requirements pursuant to Regulation 8, Rule 34 and the EG for MSW Landfills. These requirements are specified in detail in Section IV of the permit. Landfill operations and landfill gas combustion devices are also subject to numerous other BAAQMD regulations and permit conditions. Regulation 6 is not listed as a source-specific applicable requirement for the landfill (S-1), because the landfill is inactive and will produce no particulate emissions due to waste deposition, cover material application, or refuse related vehicle traffic. All applicable requirements for the landfill and flare are described in Section IV of the permit.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10, which provides that a major facility review permit shall contain the following information and provisions:

“409.10 A schedule of compliance containing the following elements:

- 10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;
- 10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and
- 10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.”

Since the District has not determined that the facility is out of compliance with an applicable requirement, the schedule of compliance for this permit only contains elements 2-6-409.10.1 and 2-6-409.10.2.

The BAAQMD Compliance and Enforcement Division conducted a review of compliance over the past year. This site was issued five Notices of Violation for not complying with several sections of Regulation 8, Rule 34, one permit condition, and one reporting requirement. Prior to issuance of these notices of violation, the District approved an Authority to Construct for an expansion of the landfill gas collection system for the landfill and for a new landfill gas flare (A-2). Operation of this new equipment was expected to bring this facility back into compliance. NVWMA has successfully completed the expansion of the gas collection system, installation of the flare, start-up of the new gas collection system components, and start-up of the flare. A District test for surface leaks from the landfill found no surface leaks. Compliance demonstration test results submitted by the facility indicate compliance with all referenced limits. Based on these test results, compliance with all applicable requirements is reasonably assured. The compliance report is contained in Appendix A of this permit evaluation and statement of basis.

VI. Permit Conditions

During the Title V permit development, the District has reviewed the existing permit conditions, deleted the obsolete conditions, and, as appropriate, revised the conditions for clarity and enforceability. Each permit condition is identified with a unique numerical identifier, up to five digits.

While the District has authority to revise the existing permits, and is doing so here concomitantly with the Title V process, it also has authority to supplement the terms of existing permits through the Title V process itself. When necessary to meet Title V requirements, additional monitoring, record keeping, or reporting has been added to the permit.

All changes to existing permit conditions are clearly shown in “strike-out/underline” format in the proposed permit. When the permit is issued, all ‘strike-out’ language will be deleted; all “underline” language will be retained.

The existing permit conditions are derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). Permit conditions may also be imposed or revised as part of the annual review of the facility by the District pursuant to California Health and Safety Code (H&SC) § 42301(e), through a variance pursuant to H&SC § 42350 et seq., an order of abatement pursuant to H&SC § 42450 et seq., or as an administrative revision initiated by District staff. After issuance of the Title V permit, permit conditions will be revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

The regulatory basis is listed following each condition. The regulatory basis may be a rule or regulation. The District is also using the following terms for regulatory basis:

- BACT: This term is used for a condition imposed by the APCO to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This term is used for a condition imposed by the APCO that limits a source to the operations described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- Offsets: This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit pursuant to Regulation 2, Rule 2.
- TRMP: This term is used for a condition imposed by the APCO to ensure compliance with limits that arise from the District’s Toxic Risk Management Policy.

Additional monitoring has been added, where appropriate, to assure compliance with the applicable requirements.

The reasons for the changes to each condition are discussed below.

Condition # 12418 for: S-1, American Canyon Sanitary Landfill with Gas Collection System and A-2, Landfill Gas Flare

Part 2: The text of this part was modified to clarify the operating requirements for the landfill gas control systems that may be used to control landfill gas generated at this site.

Part 13: Testing for both sulfur dioxide (SO₂) emissions at the flare outlet and total reduced sulfur compounds (TRS) at the flare inlet is unnecessary, because maximum possible SO₂ emissions at the outlet can be calculated based on the TRS concentration in the landfill gas going to the flare. For this site, the permit holder is required (pursuant to Part 14) to test the landfill gas for TRS on an annual basis to show compliance with the Part 11 TRS concentration limit, which is more stringent than the Regulation 9-1-302 SO₂ emission limit. Therefore, the requirement to test the landfill gas flare outlet for SO₂ emissions is redundant and is being deleted.

- Part 14: The annual gas characterization testing requirements were clarified, based on comments from staff and comments on MFR Permits for other landfills.
- Part 16: The MSW Landfill NESHAP (40 CFR, Part 63, Subpart AAAA) that was adopted by EPA on 1/16/03 requires landfill operators to submit semi-annual reports instead of the annual report required by Regulation 8-34-411. The effective date for this new reporting frequency is January 16, 2004. This permit condition was added in order to establish the semi-annual reporting frequency and to synchronize the reporting periods and submittal dates for this report with the semi-annual MFR monitoring reports that will be required by Section I.F. of the MFR Permit.

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

The tables below contain only the limits for which there is no monitoring or inadequate monitoring in the applicable requirements. The District has examined the monitoring for other limits and has determined that monitoring is adequate to provide a reasonable assurance of compliance. Calculations for potential to emit will be provided when no monitoring is proposed due to the size of a source.

Monitoring decisions are typically the result of a balancing of several different factors including: 1) the likelihood of a violation given the characteristics of normal operation, 2) the degree of variability in the operation and in the control device, if there is one, 3) the potential severity of impact of an undetected violation, 4) the technical feasibility and probative value of indicator monitoring, 5) the economic feasibility of indicator monitoring, and 6) some other factor, such as a different regulatory restriction applicable to the same operation, that also provides some assurance of compliance with the limit in question.

These factors are the same as those historically applied by the District in developing monitoring for applicable requirements. It follows that, although Title V calls for a re-examination of all monitoring, there is a presumption that these factors have been appropriately balanced and incorporated in the District's prior rule development and/or permit issuance. When a rule or permit requirement has historically had no monitoring associated with it, no monitoring may still be appropriate in the Title V permit if, for instance, there is little likelihood of a violation. Compliance behavior and associated costs of compliance are determined in part by the frequency and nature of associated monitoring requirements. As a result, the District will generally revise the nature or frequency of monitoring only when it can support a conclusion that existing monitoring is inadequate.

SO₂ Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-2 Landfill Gas Flare	BAAQMD 9-1-301	Property Line Ground Level Limits: ≤ 0.5 ppm for 3 minutes and ≤ 0.25 ppm for 60 min. and ≤ 0.05 ppm for 24 hours	None
A-2 Landfill Gas Flare	BAAQMD 9-1-302	≤ 300 ppm (dry basis)	Annual Landfill Gas Analysis

SO₂ Discussion:

Maximum potential sulfur dioxide (SO₂) emissions are calculated below for the A-2 Landfill Gas Flare followed by a calculation of the maximum SO₂ concentration in the flare exhaust. The landfill gas is assumed to contain 40% methane and to have a high heating value of 405.2 BTU per standard cubic foot. Under stoichiometric combustion conditions (no excess air), landfill gas containing 40% methane will produce 4.0186 standard dry cubic feet of exhaust gases for every standard cubic foot of landfill gas burned. Condition # 12418, Part 11 limits the concentration of total reduced sulfur compounds in the landfill gas to 200 ppmv, expressed as H₂S. Definitions of the terms used below are contained in the glossary.

$$\begin{aligned} & (210,240 \text{ MM BTU/year}) * (10^6 \text{ BTU/MM BTU}) / (405.2 \text{ BTU/scf LFG}) * (200 \text{ scf H}_2\text{S} / \\ & 10^6 \text{ scf LFG}) / (379.5 \text{ ft}^3 \text{ H}_2\text{S/lbmol H}_2\text{S}) * (1 \text{ lbmol SO}_2 / 1 \text{ lbmol H}_2\text{S}) * \\ & (64.06 \text{ pounds SO}_2 / \text{lbmol SO}_2) / (2000 \text{ pounds SO}_2 / \text{ton SO}_2) \\ & = 8.76 \text{ tons/year of SO}_2 \end{aligned}$$

$$\begin{aligned} & (200 \text{ scf H}_2\text{S} / 10^6 \text{ scf LFG}) * (1 \text{ scf SO}_2 / 1 \text{ scf H}_2\text{S}) / (4.0186 \text{ scf flue gas at 0\% O}_2 / \text{scf LFG}) \\ & = 4.98\text{E-}5 \text{ scf SO}_2 / \text{scf flue gas at 0\% O}_2 = 50 \text{ ppmv of SO}_2 \text{ at 0\% O}_2, \text{ dry basis} \end{aligned}$$

BAAQMD Regulation 9-1-301: This facility will be subject to a federally enforceable limit of 200 ppmv of TRS in the landfill gas (BAAQMD Condition # 12418, Part 11). As shown by the calculation above, this limit will ensure compliance with the BAAQMD Regulation 9-1-302 emission limit of 300 ppmv of SO₂ in the flare exhaust; and the compliance margin is 6:1. Modeling analyses at other Bay Area landfills has shown that emissions from sources that are complying with the Regulation 9-1-302 limit are not expected to result in excesses of the ground level concentration limits listed in Regulation 9-1-301. In addition, recent site-specific tests indicate that the measured sulfur dioxide concentration in the flare exhaust (32 ppmv of SO₂) was well below the Regulation 9-1-302 limit. Monitoring for ground level SO₂ concentrations - in addition to the existing requirements for annual testing of the landfill gas for total reduced sulfur concentration (Condition # 12418, Part 14) - would not be appropriate, because the margin of compliance is high and sulfur dioxide emissions are low.

BAAQMD Regulation 9-1-302: Regulation 9, Rule 1 contains no monitoring requirement for compliance with concentration limit of 300 ppmv of SO₂ (dry basis) in the flare exhaust. An existing permit condition (Condition # 12418, Part 11) will ensure that sulfur dioxide emissions will not exceed 50 ppmv of SO₂ in the flare exhaust, which is less than 20% of the limit. Recent site-specific tests indicated that the measured sulfur dioxide concentration was only 11% of the Regulation 9-1-302 limit. Compliance with Part 11 will be demonstrated by an annual landfill gas analysis for total reduced sulfur compounds (TRS). Testing at other Bay Area landfills has

shown that sulfur concentrations in landfill gas do not vary significantly and that the variability is lowest for closed landfills. Maximum potential sulfur dioxide emissions from A-2 are not substantial (9 tons/year) and will continue to decline as the gas generation rate at this closed landfill declines. Since the compliance margin with the Regulation 9-1-302 limit is high (at least 6:1), SO₂ emissions are low, and SO₂ emissions will decline over the term of this permit, annual landfill gas analysis is adequate to demonstrate compliance with the Regulation 9-1-302 limit.

PM Sources

# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-2 Landfill Gas Flare	BAAQMD Regulation 6-301	Ringelmann 1.0	None
A-2 Landfill Gas Flare	BAAQMD Regulation 6-310	0.15 gr/dscf	None

PM Discussion:

Maximum potential particulate matter (PM₁₀) emissions are calculated below for the A-2 Landfill Gas Flare followed by a calculation of the grain loading rate in the flare exhaust. The landfill gas is assumed to contain 40% methane and to have a high heating value of 405.2 BTU per standard cubic foot. Under stoichiometric combustion conditions (no excess air), landfill gas containing 40% methane will produce 4.0186 standard dry cubic feet of exhaust gases for every standard cubic foot of landfill gas burned. Based on vendor specifications, the maximum PM emission rate for this flare is 30 pounds PM₁₀/MM scf of landfill gas burned. Definitions of the terms used below are contained in the glossary.

$$\begin{aligned} & (210,240 \text{ MM BTU/year}) / (405.2 \text{ MM BTU/MM scf LFG}) * (30 \text{ pounds PM}_{10} / \text{MM scf LFG}) / \\ & (2000 \text{ pounds PM}_{10} / \text{ton PM}_{10}) \\ & = 7.78 \text{ tons/year of PM}_{10} \end{aligned}$$

$$\begin{aligned} & (30 \text{ pounds PM}_{10} / \text{MM scf LFG}) * (7000 \text{ grains/pound}) * (1 \text{ MM scf LFG} / 10^6 \text{ scf LFG}) / \\ & (4.0186 \text{ scf flue gas at } 0\% \text{ O}_2 / \text{scf LFG}) \\ & = 0.0523 \text{ grains PM}_{10} / \text{scf flue gas at } 0\% \text{ O}_2 \end{aligned}$$

BAAQMD Regulation 6-301: Visible particulate emissions are normally not associated with combustion of gaseous fuels, such as natural gas or landfill gas. Since particulate emissions are not significant and violations of Ringelmann 1.0 limit are not expected, periodic monitoring for the Ringelmann limit would not be appropriate for this flare.

BAAQMD Regulation 6-310: Regulation 6-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. As shown by the calculation above, the grain loading limit (0.15 grains/dscf) is far above the maximum PM emission rate. It would therefore not be appropriate to add periodic monitoring for this standard.

H₂S Sources

S# & Description	Emission Limit Citation	Emission Limit (Not Federally Enforceable)	Monitoring
S-1 American Canyon Sanitary Landfill	BAAQMD 9-2-301	Property line ground level limits: ≤ 0.06 ppm Averaged over 3 minutes and ≤ 0.03 ppm Averaged over 60 minutes	None
A-2 Landfill Gas Flare	BAAQMD 9-2-301	Property line ground level limits: ≤ 0.06 ppm Averaged over 3 minutes and ≤ 0.03 ppm Averaged over 60 minutes	None

Hydrogen Sulfide (H₂S) Discussion:

BAAQMD 9-2-301: Hydrogen sulfide can be detected by its odor at concentrations as low as 0.0005 ppmv and is generally identified by its characteristic rotten egg smell a concentration of 0.005 ppmv or less. Therefore, hydrogen sulfide emissions are typically discovered by smell well before the concentration approaches the lowest Regulation 9-2-301 emission limit (0.03 ppmv). The District rarely ever receives complaints about hydrogen sulfide odors from Bay Area landfills and has never received any complaints about hydrogen sulfide odors from this facility. Since hydrogen sulfide odors have not been detected at this facility, the concentration of hydrogen sulfide at the property line is expected to be well below the Regulation 9-1-301 limits. Furthermore, the maximum potential hydrogen sulfide emissions are not significant (less than 0.3 tons/year) and the Regulation 9-2-301 emission limits are not federally enforceable. Monitoring for ground level H₂S concentrations would not be appropriate when no H₂S odor problem exists.

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not applicable requirements.

If a rule or permit condition requires ongoing testing, the requirement will also appear in Section VI of the permit.

IX. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in an MFR permit explaining that specific federally enforceable regulations and standards are not applicable to a source or group of sources, or (2) A provision in an MFR permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, record keeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

This facility has no permit shields. This permit has no streamlining. The applicant did not request any permit shields or streamlining.

D. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

E. Compliance Status:

A July 21, 2003 office memorandum from the Director of Compliance and Enforcement, to the Director of Permit Services¹, presents a review of the compliance record of Napa-Vallejo Waste Management Authority (Site #A9183). The Compliance and Enforcement Division staff has reviewed the records for Site #A9183 for the period between July 15, 2002 through July 15, 2003. This review was initiated as part of the District evaluation of an application by NVWMA for a Title V permit. During the period subject to review, activities known to the District include:

- There were five Notices of Violation issued during this review period. All violations have been corrected and compliance has been restored.
- The District did not receive any alleged complaints.
- The facility is not operating under a Variance or an Order of Abatement from the District Board.
- There were no monitor excesses or equipment breakdowns reported or documented by District staff.

The owner last certified that all equipment was operating in compliance on July 8, 2003. As of September 1, 2003, no other non-compliance issues have been identified.

F. Differences between the Application and the Proposed Permit:

The Title V permit application was originally submitted on April 5, 2001 and was deemed complete (as submitted) on June 6, 2001. The April 5, 2001 version is the basis for constructing the proposed Title V permit.

The proposed permit includes the S-1 American Canyon Sanitary Landfill and gas collection system and the A-2 Landfill Gas Flare. NVWMA discussed their proposed collection system expansion and a proposed flare in documents accompanying their MFR permit application.

¹ As July 1, 2003, the name of the Permit Services Division was changed to Engineering Division.

Permit Evaluation and Statement of Basis: Site A9183, Napa-Vallejo Waste Management Authority,
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However, this equipment was not included on any of their MFR application forms, because the equipment was not yet permitted. The District issued an Authority to Construct for the collection system expansion and the A-2 Landfill Gas Flare on June 17, 2002 and issued a Permit to Operate for the new equipment on June 17, 2003. The District is proposing to include this new equipment in the draft MFR Permit, along with all permit condition changes approved pursuant to Applications # 3286 and # 6740.

For S-1, the applicant listed numerous District and federal applicable requirements. The proposed permit includes all of the applicable requirements identified by the applicant except: 40 CFR Part 60, Subpart WWW, 40 CFR Part 62, and Subpart GGG. When the revised California State Plan became effective on November 19, 2001, 40 CFR Part 60, Subpart WWW and 40 CFR Part 62, Subpart GGG were replaced by 40 CFR Part 62.1115. In addition, the proposed MACT for MSW Landfills (40 CFR Part 63, Subpart AAAA) was promulgated in January 2003 with an effective date of January 16, 2004 for this site. All applicable MACT requirements are included in this permit. The District also added applicable requirements from BAAQMD Regulation 9, Rule 1 and the recently revised BAAQMD Permit Condition # 12418 for S-1.

For A-2, the District listed all applicable requirements in the proposed permit including those from the following regulations: BAAQMD Regulation 1; SIP Regulation 1; BAAQMD Regulation 6; BAAQMD Regulation 8, Rule 34; BAAQMD Regulation 9, Rule 1; BAAQMD Regulation 9, Rule 2; 40 CFR Part 60, Subpart A, 40 CFR Part 60, Subpart Cc, 40 CFR Part 62.1115; 40 CFR Part 63, Subpart AAAA; and BAAQMD Permit Condition # 12418. NVWMA did not list any applicable requirements for A-2 on their application forms, because this equipment was not permitted when the application was submitted.

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Permit Evaluation and Statement of Basis: Site A9183, Napa-Vallejo Waste Management Authority,
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APPENDIX A
BAAQMD COMPLIANCE REPORT

APPENDIX B

GLOSSARY

ACT

Federal Clean Air Act

APCO

Air Pollution Control Officer: Head of Bay Area Air Quality Management District

ARB

Air Resources Board

BAAQMD

Bay Area Air Quality Management District

BACT

Best Available Control Technology

Basis

The underlying authority which allows the District to impose requirements.

CAA

The federal Clean Air Act

CAAQS

California Ambient Air Quality Standards

CAPCOA

California Air Pollution Control Officers Association

CARB

California Air Resources Board (same as ARB)

CEQA

California Environmental Quality Act

CFR

The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

CH4 or CH₄

Methane

CO

Carbon Monoxide

CT

Combustion Zone Temperature

Cumulative Increase

The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Used to determine whether threshold-based requirements are triggered.

District

The Bay Area Air Quality Management District

EG

Emission Guidelines

EPA

The federal Environmental Protection Agency.

Excluded

Not subject to any District regulations.

Federally Enforceable, FE

All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPs), Part 63 (MACT), and Part 72 (Permits Regulation, Acid Rain), including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

FP

Filterable Particulate as measured by BAAQMD Method ST-15, Particulate.

H₂S or H₂S

Hydrogen Sulfide

HAP

Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by 40 CFR Part 63.

HHV

Higher Heating Value. The quantity of heat evolved as determined by a calorimeter where the combustion products are cooled to 60F and all water vapor is condensed to liquid.

LFG

Landfill gas

Major Facility

A facility with potential emissions of: (1) at least 100 tons per year of regulated air pollutants, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator.

MAX or Max.

Maximum

MFR

Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Federal Clean Air Act and implemented by District Regulation 2, Rule 6.

MIN or Min.

Minimum

MOP

The District's Manual of Procedures.

MSW

Municipal solid waste

MW

Molecular weight

N2 or N₂

Nitrogen

NA

Not Applicable

NAAQS

National Ambient Air Quality Standards

NESHAPS

National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Parts 61 and 63.

NMHC

Non-methane Hydrocarbons (Same as NMOC)

NMOC

Non-methane Organic Compounds (Same as NMHC)

NO_x or NO_x

Oxides of nitrogen.

NSPS

Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Federal Clean Air Act, and implemented by 40 CFR Part 60 and District Regulation 10.

NSR

New Source Review. A federal program for pre-construction review and permitting of new and modified sources of pollutants for which criteria have been established in accordance with Section 108 of the Federal Clean Air Act. Mandated by Title I of the Federal Clean Air Act and implemented by 40 CFR Parts 51 and 52 and District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

NVWMA

Napa-Vallejo Waste Management Authority

O₂ or O₂

Oxygen

Offset Requirement

A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, NO_x, PM₁₀, and SO₂.

Phase II Acid Rain Facility

A facility that generates electricity for sale through fossil-fuel combustion and is not exempted by 40 CFR 72 from Titles IV and V of the Clean Air Act.

POC

Precursor Organic Compounds

PM

Particulate Matter

PM₁₀ or PM₁₀

Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

PSD

Prevention of Significant Deterioration. A federal program for permitting new and modified sources of those air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

RMP

Risk Management Plan

S

Sulfur

SIP

State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

SO₂ or SO₂

Sulfur dioxide

SSM

Startup, Shutdown, or Malfunction

SSM Plan

A plan, which states the procedures that will be followed during a startup, shutdown, or malfunction, that is prepared in accordance with the general NESHAP provisions (40 CFR Part 63, Subpart A) and maintained on site at the facility.

THC

Total Hydrocarbons (NMHC + Methane)

Title V

Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

TOC

Total Organic Compounds (NMOC + Methane, Same as THC)

TPH

Total Petroleum Hydrocarbons

TRMP

Toxic Risk Management Policy

TRS

Total Reduced Sulfur

TSP

Total Suspended Particulate

VOC

Volatile Organic Compounds

Symbols:

<	=	less than
>	=	greater than
≤	=	less than or equal to
≥	=	greater than or equal to

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
BTU	=	British Thermal Unit
°C	=	degrees Centigrade
cfm	=	cubic feet per minute
dscf	=	dry standard cubic feet
°F	=	degrees Fahrenheit
ft ³	=	cubic feet
g	=	grams
gal	=	gallon

gpm	=	gallons per minute
gr	=	grains
hp	=	horsepower
hr	=	hour
lb	=	pound
lbmol	=	pound-mole
in	=	inches
m ²	=	square meter
m ³	=	cubic meters
min	=	minute
mm	=	million
MM	=	million
MM BTU	=	million BTU
MMcf	=	million cubic feet
Mg	=	mega grams
ppb	=	parts per billion
ppbv	=	parts per billion, by volume
ppm	=	parts per million
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scf	=	standard cubic feet
scfm	=	standard cubic feet per minute
sdcf	=	standard dry cubic feet
sdcfm	=	standard dry cubic feet per minute
yd	=	yard
yd ³	=	cubic yards
yr	=	year